UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,028	11/18/2003	Bo Li	H9930-0305	7345

62993 7590 03/20/2009

BUCHALTER NEMER
18400 VON KARMAN AVE.
SUITE 800
IRVINE, CA 92612

EXAMINER	
JOHNSON, CONNIE P	

ART UNIT	PAPER NUMBER
1795	

MAIL DATE	DELIVERY MODE
03/20/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/717,028	LI ET AL.	
	Examiner	Art Unit	
	CONNIE P. JOHNSON	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-15,18,26-31 and 37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-15,18,26-31 and 37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/7/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The remarks and amendment filed 12/4/2008 have been entered and fully considered.

2. Claims 1, 3-15, 18, 26-31 and 37 are presented.

3. Claims 1 and 3 are amended.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 3, 11, 12, 13, 26, 27, 28 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Putzer, U.S. Patent Publication No. 2004/0122197 A1.

Putzer teaches a composition comprising an organic dye (page 6, [0087]), a polyorganosiloxane (col. 2, [0012-0016]) , polydimethylsiloxanes and aminopropyltriethoxysilane (APTEOS) as an adhesion promoter as in instant claim 31 (page 3, [0045] and formulation C, Table 2) and a catalyst as in instant claim 1. The organic dye is capable of absorbing radiation and meets the limitations of an organic absorbing compound. The catalyst comprises an acid as in instant claims 26 and 28

(page 5, [0069]). Putner also teaches salts of phosphoric acid esters that meet the limitations of a neutral adhesion promoter (page 4, [0053]).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1, 4-15 and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al., U.S. Patent No. 6,506,497 B1 in view of Putzer, U.S. Patent Publication No. 2004/0122197 A1.

Kennedy teaches an anti-reflective coating composition comprising one or more organic light-absorbing compounds (abstract). The composition also comprises silane reactants that meets the limitations of the material modification agent in claim 1 (col. 6, lines 22-26). The organic compounds have an absorption peak at least 10nm wide over wavelengths 248, 193 and 365nm (col. 4, lines 44-47). The organic compounds comprise two or more benzene rings as in claim 8 (see figures 1a and 1b). The organic compounds may also comprise anthraflavic acid, 9-anthracene carboxylic acid, 9-anthracene methanol, alizarin and other compounds in col. 2, lines 63-67 and col. 3, lines 1-3. The inorganic compounds may also comprise silicon based compounds, such as methylsiloxane, methylsilesquioxane, phenylsiloxane and hydrogensilsesquioxane polymers (col. 3, lines 7-22 and 5-32). Kennedy also teaches naphthalene based

compounds, which have fused benzene rings as in claim 9 (col. 4, line 33). Kennedy also teaches acids in the composition that are capable of representing an adhesion promoter (col. 6, lines 32-34). The difference between the reference and the instant invention is that Kennedy does not teach aminopropyltriethoxysilane as the adhesion promoter.

Putzer teaches a composition comprising an organic dye and a polyorganosiloxane (col. 2, lines 52-58). The composition also comprises a silane adhesion promoter, such as aminopropyltriethoxysilane (APTEOS) (page 3, [0045] and formulation C, Table 2). Putzer discloses improved adhesion results wherein the composition comprises aminopropyltriethoxysiloxane as an adhesion promoter and a polymethyl methacrylate resin. Kennedy also teaches polymethyl methacrylate resin in the composition. Therefore, it would have been obvious to one of ordinary skill in the art that the composition of Kennedy would benefit from the addition of aminopropyltriethoxysilane as the adhesion promoter to provide improved adhesion in the composition.

8. Claims 1, 3, 7, 11, 12, 13, 18, 26, 29, 30, 31 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ravichandran et al., U.S. Patent No. 6,677,392 B2 in view of Hayashi et al., U.S. Patent Publication No. 2003/0091838 A1.

Ravichandran teaches an absorbing composition consisting of an inorganic compound, an absorbing compound and a material modification agent (Column 9, lines 50-59 and column 10, lines 55-67). The viscosity improvers, light stabilizers, biocides and antistatic agents meet the limitations of material modifiers (col. 10, lines 56-60).

The absorbing compounds include an epoxy carboxy resin and a silane modified acrylic melamine (column 10, line 9) as claimed in instant claim 7. In addition, when water-soluble, water miscible or water dispersible coatings are preferred, ammonium salts of acid groups present in the resin are formed. For example, a powder coating composition can be prepared by reacting glycidyl methacrylate with selected alcohol components (column 23, lines 49-53). Ravichandran also teaches silicon oxide as an inorganic compound used in combination with polysiloxanes and other activators and ligands as a stabilizer in the polymer composition (column 12, lines 20-41). Ravichandran also teaches phosphites (column 19, no. 4) as stabilizers used in the composition as in instant claim 18. In reference to claims 29 and 30, crosslinked polymers such as phenol/formaldehyde resins and epoxy acrylates are also used as stabilizers in the composition (column 14, no. 21 and 24). Ravichandran teaches adhesion promoters used in polymerization includes dialkoxyalkylsilanes, trialkoxysilanes and other similar silane intermediates (column 27, lines 56-61) as in instant claim 31. Ravichandran does not teach the adhesion promoters as in claim 1 of the invention.

However, Hayashi teaches a film-forming composition comprising a siloxane polymer with a structure as in formula (3) on page 1. The composition also comprises an organic compound (page 2, [0025-0026]) and an ammonium compound. The ammonium compound forms a composition with a low dielectric constant, high modulus and excellent adhesion to the substrate (page 4, [0043]). The ammonium compound includes ammonium nitrate (page 4, [0050]), tetramethylammonium nitrate, tetramethylammonium acetate, tetrabutylammonium nitrate and tetrabutylammonium acetate (page 7, [0055-0056]). It would have been obvious to one

of ordinary skill in the art that tetramethylammonium nitrate, tetramethylammonium acetate, tetrabutylammonium nitrate or tetrabutylammonium acetate would combine with the silicon polymer in the composition of Ravichandran to form a silicon-based film with improved film-forming characteristics as taught by Hayashi because Hayashi teaches any of the ammonium compounds are capable of combining with the silicon polymer to form films with improved characteristics.

9. Claims 1 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kennedy et al., U.S. Patent No. 6,506,497 B1 in view of Putzer, U.S. Patent Publication No. 2004/0122197 A1 and further in view of Dammel et al., U.S. Patent Publication No. 2004/0166434 A1.

Kennedy teaches an anti-reflective coating composition comprising one or more organic light-absorbing compounds, an inorganic compound and a silane reactant as relied upon above. Kennedy does not teach TMAA, TMAN or the compounds in claim 37.

However, Dammel teaches a resist coating composition comprising a polymer, a photoacid generator and an alkaline solution. The alkaline solution includes tetramethylammonium acetate (TMAA) (page 19, [0095]). It would have been obvious to one of ordinary skill in the art to use the tetramethylammonium acetate of Dammel in the resist composition of Kennedy because the TMAA promotes adhesion between the resist and antireflective layers.

Response to Arguments

10. Applicant's arguments filed 12/4/2008 have been fully considered but they are not persuasive.

11. Applicant argues that Hayashi does not teach absorbing compounds.

Hayashi does teach absorbing compounds. The absorbing compounds comprise phenyl or phenyl-substituted silane compounds, such as phenyltrimethoxysilane and diphenyl silanes (page 2, [0025 and 0026]).

12. Applicant argues that Ravichandran does not teach ammonium salts or amine based compounds as material-modification agents. Further, that the combination of Ravichandran and Hayashi is based on hindsight.

Although Ravichandran may not teach an ammonium or amine-based compound as claimed, Hayashi, in analogous art teaches ammonium salts and amine-based compounds to combine with a silane compound to improve film-forming characteristics. The silane compounds include diphenyl silanes and phenyl-substituted silanes, which are absorbing compounds. Therefore, Ravichandran would benefit from the addition of an ammonium compound to improve film-forming characteristics taught by Hayashi.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Connie P. Johnson/

Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795